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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,976	01/21/2004	Yuan Kong	MS#304568.01 (5081)	4051

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SENNIGER POWERS (MSFT)
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EXAMINER	
LIANG, REGINA	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/761,976	KONG, YUAN	
	Examiner	Art Unit	
	Regina Liang	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29 and 31-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29, 31-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to amendment filed 10/24/06. Claims 1-29, 31-36 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1-11, 14, 15, 23-28, 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinckley et al (US 2002/0067334 hereinafter Hinckley) in view of Van Schyndel et al (US 6,859,141 hereinafter Van Schyndel).

As to claim 27, Hinckley discloses a data input device comprising a proximity sensor for detecting changes in electric fields near the input device to determine when the user is proximate the device ([0054] and last four lines in [0055]). Hinckley does not disclose the proximity sensor comprising at least two electrodes, measuring an electrical impedance between the two electrodes and determining the relative distance between the input device and the tracking surface as a function of the measured impedance. However, Figs. 1, 3, 4, of Van Schyndel teaches a proximity sensor (10) comprising one transmitting electrode (12) and one receiving electrode (14), the sensor generates an electric field from the transmitting electrode 12 and detects the electric field at the receiving electrode. Van Schyndel also teaches the sensor having an effective sensing range, the sensor processes the signals when an object approaches to within the sensing range, when no object is present within the effective sensing range of the detector, no

signal is processed (col. 6, lines 40 to col. 7, line 19). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the proximity sensor including two electrodes as taught by Van Schyndel in the data input device of Hinckley so as to provide a transmit-receive type electric field proximity detector which permits objects to be reliably detected (col. 2, lines 26-28 of Van Schyndel). Thus, Hinckley as modified by Van Schyndel would determine the relative distance between the data input device and the tracking surface as a function of the measured impedance (the effective sensing range corresponds to the relative distance between the input device and the tracking surface (user), when the user is proximate the touch area within effective sensing range, the controller of Hinckley would process the touch signal, when the user is not proximate within the sensing range, no signal is inputted to the touch sensor).

As to claim 28, Van Schyndel teaches measuring an electrical capacitance between the two electrodes (col. 6, lines 40-42).

As to claims 1, 2, 33, 34, note the discussion of claim 27 above. The range within the effective sensing range of Van Schyndel corresponds to measurement zone. The user or the object is not presented within the sensing range corresponds to lift-off detection distance. Thus, the controller of Hinckley as modified by Van Schyndel would initiate a non-tracking mode in which the controller suspends tracking of relative movement when the data input device is spatially separated from the tracking surface by at least the lift-off detection distance (when the user is proximate the touch area within effective sensing range, the controller processes the touch signal (tracking mode), the user is not proximate within the sensing range of the input device, no

signal is detected by the sensor and not input is inputted to the touch sensor (non-tracking mode, or suspends tracking)).

As to claim 3, Hinckley as modified by Van Schyndel teaches the sensor is shaped and size to face the tracking surface when the input device is in the tracking mode (user is proximate the input device).

As to claim 4, Hinckley as modified by Van Schyndel would have the impedance sensor and the controller enclosed within a housing.

As to claim 5, Hinckley teaches the sensor is mounted on a surface of the housing. Thus, Hinckley as modified by Van Schyndel would having the sensor is shaped and sized to mount on the surface of the housing and shaped and size to engage the tracking surface.

As to claims 6, 35, Van Schyndel teaches the impedance sensor comprises at least two electrode (12, 14).

As to claims 7 and 8, Hinckley as modified by Van Schyndel does not disclose the sensor comprising at least four electrodes or at least six electrodes. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hinckley as modified by Van Schyndel to have the number of electrodes as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 9, Van Schyndel teaches the impedance sensor is a capacitance sensor (col. 6, lines 40-42).

As to claim 10, Figs. 2-4 of Van Schyndel teaches the two electrodes (12, 14) are adjacent one another and are substantially equidistant from one another.

As to claim 11, Fig. 2A of Van Schyndel teaches the first electrode comprises a circular conductor (212), a second electrode comprises a substantially annular conductor (214).

As to claim 14, Van Schyndel teaches the sensor comprising an oscillator circuit (inherent the oscillator includes RC resonance circuit).

As to claim 15, Hinckley as modified by Van Schyndel does not disclose one electrode mounted on the data input device, the second electrode comprising the tracking surface. However. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hinckley as modified by Van Schyndel to have the electrodes located as claimed (one electrode mounted on the data input device, another electrode provided in user's tracking surface such as stylus), since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

As to claim 23, Hinckley teaches the tracking surface is human skin.

As to claims 24-26, Hinckley as modified by Van Schyndel does not disclose the lift-off detection distance is no more than 4 millimeters, or is between about 0.5-4 or 0.5-3 millimeters. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hinckley as modified by Van Schyndel to have the number of electrodes as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

4. Claims 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinckley and Van Schyndel as applied to claim 9 above, and further in view of Goldfine et al (US 2002/0075006 hereinafter Goldfine).

As to claim 12, Hinckley as modified by Van Schyndel does not disclose the first and second electrodes comprises substantially comb-shaped conductors. However, Fig. 4 of Goldfine teaches the electrodes of the impendence sensor comprising substantially comb-shaped conductors which having digits extending at regular intervals from an edge of each electrode. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the electrodes of Hinckley as modified by Van Schyndel to have substantially comb-shaped conductors as taught by Goldfine since this structure "allows for improved accuracy in the determination of the properties of solid dielectrics by allowing different depths of penetration to be achieved with the same sensor footprint" (lines 12-16 of [0055] of Goldfine).

As to claim 13, Goldfine teaches the capacitance sensor creates a fringing field as claimed ([0009]-[0093].

5. Claims 16-22, 29, 31, 32, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinckley and Van Schyndel as applied to claim 6 above, and further in view of Rabkin (US 2003/0136897).

As to claims 16, 21, 36, Hinckley as modified by Van Schyndel does not disclose the impedance sensor is a resistance sensor or an inductance sensor. However, it is well known in the art that that a proximity sensor comprising a resistance sensor or inductance sensor (see the

abstract of Rabkin). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a resistance sensor or a inductance sensor as a proximity sensor in the device of Hinckley as modified by Van Schyndel so as to provide "an apparatus and method that employs a sensor to achieve a low cost user input interface that is both cost effective and reliable in all usage situations" ([0007] of Rabkin).

As to claims 17-20, 22, Hinckley as modified by Van Schyndel and Rabkin would have the limitation as claimed.

As to claim 29, note the discussion of claims 1 and 16 above.

As to claims 31, 32, Hinckley as modified by Van Schyndel and Rabkin would have the resistance sensor as claimed.

Response to Arguments

6. Applicant's arguments filed 12/24/06 have been fully considered but they are not persuasive.

Applicant's remarks regarding claim 27 in that "Van Schyndel merely discloses a sensor that determines whether a physical object is within the sensing range of the detector. Van Schyndel fails to disclose a sensor that determines the relative distance between an object and an input device" (page 10, lines 15-16) and "neither cited reference teaches the processes of measuring an electrical impedance between the at least two electrodes and determining the relative distance between the data input device and the tracking surface as a function of the measured impedance" (page 11, 9-12) are not persuasive. Figs. 4A and 4B of Van Schyndel clearly teaches the relationship of object-to-electrode distance to the detector's output voltage when the detector senses an object, decreasing in the distance between the object and the detector

produces a strongly decreasing detector output voltage (col. 7, lines 36 to col. 8, line 19), therefore, Van Schyndel teaches the sensor that measures an electrical impedance (capacitive coupling) between the transmitting electrode and the receiving electrode and determines the relative distance between an object and the sensing device.

Applicant also argues "detecting whether an object is within the effective sensing range or outside of the effective sensing range merely determines whether an object is **closer or further** than a single distance; it does not actually determine the **relative distance** between the object and the device, as required by claim 27", which is not persuasive. Van Schyndel teaches detecting whether an object is within the effective sensing range or outside of the effective sensing range, the effective sensing range clearly reads on determining the **relative distance** between the object and the device, as required by claim 27, since this range is a relative distance between the object and the sensing device that the sensor will operate and outside this distance the sensor will not operate.

Applicant's remarks regarding claims 1 and 29 on page 12 are not persuasive, see the remarks as set forth above with respect to claim 27.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

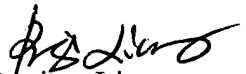
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Regina Liang
Primary Examiner
Art Unit 2674

11/29/06